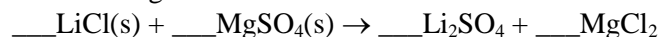


Gas Law Stiochiometry

Pre AP

You will need to complete on a separate sheet of paper. Show all work including units or no credit will be given.

1. Balance the following rxn:



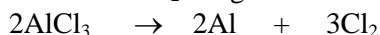
If you started with 15.0g of LiCl, how many grams of MgSO₄ would you need to complete the rxn?

2. Methane (CH₄) burns with O₂ to form carbon dioxide (CO₂) and water vapor (H₂O). If 20.0g of CH₄ was mixed with 30.0 g of O₂ in a closed container and ignited:
- What would be the limiting reagent?
 - How much excess reagent would be left over?
 - How much CO₂ would be made?
 - How much H₂O would be made?

3. Given carbon dioxide occupying 5.5 L at 5°C and 0.74 atm.

- Find moles of carbon dioxide
- Now find mass of carbon dioxide

4. How many grams of AlCl₃ must decompose in order to produce 3.10L of Cl₂ at 50.0°C and 98.4 kPa? (HINT: Find moles of Cl₂ the grams of AlCl₃)



5. What volume of nitrogen can be produced by the decomposition of 50.0 g of NH₄NO₂ at 25°C and 1.20 atm? (HINT: Find moles N₂ of form grams of NH₄NO₂.)

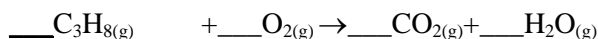


6. Given the following unbalanced chemical equation for the rxn of Na and Cl_{2(g)}:



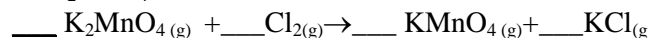
What volume of chlorine gas, measured at STP, is necessary for the complete rxn of 4.81g of Na.

7. Balance the below rxn.



- What volume of oxygen gas at 25°C and 1.04 atm is needed for the complete combustion of 5.53 g of propane?

8. Potassium permanganate, KMnO₄, is produced commercially by oxidizing aqueous potassium manganate, K₂MnO₄.



- Balance the above rxn.
- What volume of Cl_{2(g)}, measured at STP, is needed to produce 10.0g of KMnO₄?

9. If water is added to magnesium nitride, ammonia gas is produced when the mixture is heated.



- Balance the above reaction.
- If 10.3g of magnesium nitride is treated with 10.3 g of water, what volume of ammonia gas would be collected at 24°C and 752 mmHg?